-Q7

div. V= 2x + 1 + 2z

$$\int_0^{2\pi}\int_0^{2}\int_0^{2-r\cos\theta} 2r\cos\theta+1+2z\,dz\,r\,dr\,d\theta$$

$$\int_0^{2\pi}\int_0^{2} 2r^2\cos\theta z+rz+rz^2\Big|_0^{2-r\cos\theta} dr\,d\theta$$

$$\int_0^{2\pi}\int_0^{2} 2r^2\cos\theta(2-r\cos\theta)+r(2-r\cos\theta)+r(2-r\cos\theta)^2\,dr\,d\theta$$

$$\int_0^{2\pi}\int_0^{2} 4r^2\cos\theta-2r^3\cos^2\theta+2r-r^2\cos\theta+4r-4r^2\cos\theta+r^2\cos^2\theta\,dr\,d\theta$$

$$\int_0^{2\pi}\int_0^{2} 6r-2r^3\cos^2\theta-r^2\cos\theta+r^2\cos^2\theta\,dr\,d\theta$$

$$\int_0^{2\pi} 3r^2-\frac{r^4}{2}\cos^2\theta-\frac{r^3}{3}\cos\theta+\frac{r^3}{3}\cos^2\theta\Big|_0^2\,d\theta$$

$$\int_0^{2\pi} 12-8\cos^2\theta-\frac{8}{3}\cos\theta+\frac{8}{3}\cos^2\theta\,d\theta$$

$$\int_0^{2\pi} 12-4(1+\cos 2\theta)-\frac{8}{3}\cos\theta+\frac{4}{3}(1+\cos 2\theta)\,d\theta$$

$$\left(12-\frac{8}{3}\theta-\frac{4}{3}\sin 2\theta-\frac{8}{3}\sin\theta\right)\Big|_0^{2\pi}=\left(24\pi-\frac{16}{3}\pi-0-0\right)$$

¿ $\frac{56\pi}{3}$